

# PATENT ABSTRACTS OF JAPAN

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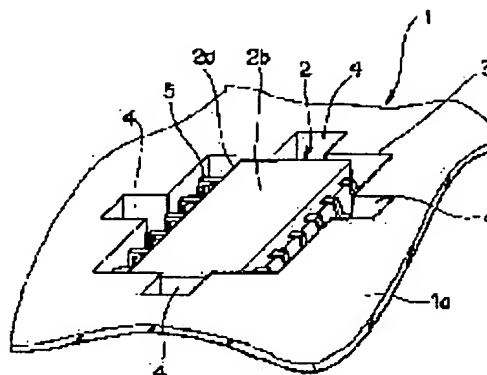
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## (54) MANUFACTURE OF SEMICONDUCTOR INTEGRATED CIRCUIT DEVICE

### (57)Abstract:

**PROBLEM TO BE SOLVED:** To surely prevent shift of leads and deformation of the leads by visual inspection of a semiconductor integrated circuit device, in a tray for housing the device.

**SOLUTION:** A pocket 3 for housing a semiconductor integrated circuit unit 2 is provided in the side of the surface 1a of a tray 1 for housing and tweezers holes 4, for taking out the unit 2 from the pocket 3 by tweezers or the like are formed in the surface 1a by a molding integral with the pocket 3 in each side of the four sides of the pocket 3. These holes 4 are formed by projecting protrusions from the side of the surface 1a of the tray 1 toward the side of the rear of the tray 1, and the unit 2 on the surface of the tray 1 is suppressed of its movement by these protrusions.



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**CLAIMS**

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[Claim(s)]

[Claim 1] The process which contains semiconductor integrated circuit equipment using the tray for receipt which prepared the member which controls migration of semiconductor integrated circuit equipment in the front face and the rear face, In the manufacture approach of semiconductor integrated circuit equipment of having the process which conveys in piles two or more said trays for receipt on which said semiconductor integrated circuit equipment was contained The die length of the member prepared in said tray front face for receipt from the field which meets the package rear face of said semiconductor integrated circuit equipment to said tray front face for receipt is the manufacture approach of the semiconductor integrated circuit equipment characterized by the \*\*\*\*\* rather than the thickness of the package of said semiconductor integrated circuit equipment.

[Claim 2] The configuration of said member prepared in said tray front face for receipt and the configuration of said member prepared in said tray rear face for receipt are the manufacture approach of the semiconductor integrated circuit equipment according to claim 1 characterized by being the configuration which can fit in mutually.

[Claim 3] The process which contains semiconductor integrated circuit equipment using the tray for receipt which prepared the member which controls migration of semiconductor integrated circuit equipment in the front face and the rear face, In the manufacture approach of semiconductor integrated circuit equipment of having the process which conveys in piles two or more said trays for receipt on which said semiconductor integrated circuit equipment was contained The configuration of said member prepared in said tray front face for receipt and the configuration of said member prepared in said tray rear face for receipt are the manufacture approach of the semiconductor integrated circuit equipment characterized by being the configuration which can fit in mutually.

[Claim 4] The configuration of said member on said front face for receipt of a tray and the configuration of said member on said rear face for receipt of a tray are the manufacture approach of semiconductor integrated circuit equipment given in any 1 term of claims 1-3 characterized by being the configuration which controls migration of said semiconductor integrated circuit equipment in the direction of the side face which counters said side face from one side face of said semiconductor integrated circuit equipment.

[Claim 5] The field which meets the package rear face of semiconductor integrated circuit equipment is used as the front face. The member which controls migration of said \*\*\*\*\* on the tray for receipt prepared in the front face and a rear face The manufacture approach of the semiconductor integrated circuit equipment characterized by having an inspection process including the process which reverses said tray for receipt piled-up [ two or more ] after piling up two or more trays for receipt on which the package was used as the top face, said semiconductor integrated circuit equipment was contained, and said semiconductor integrated circuit equipment was contained.

[Claim 6] The manufacture approach of the semiconductor integrated circuit equipment according to claim 5 characterized by conducting visual inspection on the front face of a package of said contained semiconductor integrated circuit equipment in said inspection process.

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DETAILED DESCRIPTION

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[Detailed Description of the Invention]

[0001]

[Industrial Application] About the tray for receipt of semiconductor integrated circuit equipment, especially this invention is applied to the tray for receipt of SOP (Small Outline Package) and the semiconductor integrated circuit equipment of a TSOP (Thin SmallOutline Package) form, and relates to an effective technique.

[0002]

[Description of the Prior Art] In semiconductor integrated circuit equipment, visual inspection of the pinhole of the top face of a package, a rear face, and a side face, a blemish, foreign matter adhesion, a crack, the chip, etc. is carried out by viewing at the time of product shipment.

[0003] At the time of the visual inspection of the rear face of the package of this semiconductor integrated circuit equipment, it is inspecting by reversing the tray for conveyance which moved and inspected on other trays of rear-face checking from the tray for receipt with the fixture, or plurality accumulated, and reversing the package of semiconductor integrated circuit equipment.

[0004]

[Problem(s) to be Solved by the Invention] However, when moving and inspecting on other trays, a gap and deformation of a lead of the time of migration between trays will arise. Moreover, since there are dramatically few clearances between the pocket of the tray for receipt and semiconductor integrated circuit equipment (shown in drawing 5 R> 5), when there is no fixture, it is difficult, and taking out semiconductor integrated circuit equipment will have to carry out moving for which an operator uses a fixture, and manday will also require it.

[0005] Furthermore, since the rear face of the tray for receipt is a flat surface (shown in drawing 6 ) when inspecting by changing into the condition of having reversed the tray for receipt which plurality accumulated, and removing the tray for receipt When the location of semiconductor integrated circuit equipment shifts after inspection termination, the tray for receipt is reversed again and it changes into a normal condition Semiconductor integrated circuit equipment does not go into the pocket of the tray for receipt well, but jumps out, or a lead is inserted between packages, and there is a problem that a lead will deform.

[0006] The object of this invention is to offer the manufacture approach of the semiconductor integrated circuit equipment which can make ejection from a receipt tray easy, and can prevent a gap, deformation, etc. of a lead at the time of visual inspection etc.

[0007] The other objects and the new description will become clear from description and the accompanying drawing of this description along [ said ] this invention.

[0008]

[Means for Solving the Problem] It will be as follows if the outline of a typical thing is briefly explained among invention indicated in this application.

[0009] Namely, the manufacture approach of the semiconductor integrated circuit equipment of this invention The process which contains semiconductor integrated circuit equipment using the tray for

receipt which prepared the member which controls migration of semiconductor integrated circuit equipment in the front face and the rear face, It has the process which conveys in piles two or more said trays for receipt on which said semiconductor integrated circuit equipment was contained. The die length of the member prepared in the tray front face for receipt from the field which meets the package rear face of semiconductor integrated circuit equipment to the tray front face for receipt is longer than the thickness of the package of semiconductor integrated circuit equipment.

[0010] Moreover, the configuration of a member where the manufacture approach of the semiconductor integrated circuit equipment of this invention was formed in said tray front face for receipt, and the configuration of a member prepared in said tray rear face for receipt consist of a configuration which can fit in mutually.

[0011] Furthermore, the manufacture approach of the semiconductor integrated circuit equipment of this invention The process which contains semiconductor integrated circuit equipment using the tray for receipt which prepared the member which controls migration of semiconductor integrated circuit equipment in the front face and the rear face, it has the process which conveys in piles two or more trays for receipt on which semiconductor integrated circuit equipment was contained, and the configuration of a member prepared in the tray front face for receipt and the configuration of a member prepared in the tray rear face for receipt consist of a configuration which can fit in mutually -- it comes out.

[0012] Moreover, the manufacture approach of the semiconductor integrated circuit equipment of this invention consists of a configuration in which the configuration of the member on said front face for receipt of a tray and the configuration of the member on said rear face for receipt of a tray control migration of semiconductor integrated circuit equipment in the direction of the side face which counters a side face from one side face of semiconductor integrated circuit equipment.

[0013] Furthermore, the manufacture approach of the semiconductor integrated circuit equipment of this invention The field which meets the package rear face of semiconductor integrated circuit equipment is used as the front face. The member which controls migration of \*\*\*\*\* on the tray for receipt prepared in the front face and a rear face After piling up two or more trays for receipt on which the package was used as the top face, semiconductor integrated circuit equipment was contained, and semiconductor integrated circuit equipment was contained, it has an inspection process including the process which reverses the tray for receipt kneaded two or more [-fold ].

[0014] Moreover, the manufacture approach of the semiconductor integrated circuit equipment of this invention conducts visual inspection on the front face of a package of the contained semiconductor integrated circuit equipment in said inspection process.

[0015] Furthermore, semiconductor integrated circuit equipment is not contained by the maximum upper case of the tray for receipt on which it elaborated on two or more-fold manufacture approach of the semiconductor integrated circuit equipment of this invention in said inspection process.

[0016] Migration of the semiconductor integrated circuit equipment produced in the visual inspection of the rear face of semiconductor integrated circuit equipment by that cause when the tray for receipt is turned over can be controlled by the projection which was turned and formed in the rear-face side from the front-face side of the tray for receipt and which protruded. Moreover, even if it does not move semiconductor integrated circuit equipment to other trays with a fixture, the tray for receipt can be accumulated and inspected.

[0017]

[Embodiment of the Invention] Hereafter, the gestalt of operation of this invention is explained to a detail based on a drawing.

[0018] The sectional view of the tray for receipt according [ the amplification perspective view of the rear face of the tray for receipt according / the amplification perspective view of the front face of the tray for receipt according / drawing 1 / to the gestalt of 1 operation of this invention and drawing 2 / to the gestalt of 1 operation of this invention and drawing 3 ] to the gestalt of 1 operation of this invention and drawing 4 are the sectional views of the tray for receipt after reversal by the gestalt of 1 operation of this invention.

[0019] In the gestalt of this operation, as shown in drawing 1 , the pocket 3 formed in accordance with

the configuration of said semiconductor integrated circuit equipment 2 for containing semiconductor integrated circuit equipment 2 is formed in the surface 1a side of the tray 1 for receipt.

[0020] Moreover, the pincette hole 4 for taking out semiconductor integrated circuit equipment 2 with pincettes etc. for every side, respectively of the neighborhood of the pocket 3 is a pocket 3 and really [ said ] formed with shaping. This pincette hole 4 is formed by protruding projection 4a towards the rear-face 1b side from the surface 1a side of the tray 1 for receipt, as shown in drawing 2.

[0021] Furthermore, it is formed when the pocket 3 for containing semiconductor integrated circuit equipment 2 also protrudes projection 3a towards the rear-face 1b side from the surface 1a side of the tray 1 for receipt. As for the tray 1 for receipt, these pockets 3 are formed successively length and horizontally at fixed spacing.

[0022] Moreover, much leads 5 are arranged in package 2a, as for said semiconductor integrated circuit equipment 2, semiconductor integrated circuit equipment 2 usually uses surface 2b of package 2a as a top face, and it is contained.

[0023] Next, the operation in the gestalt of this operation is explained.

[0024] As shown in drawing 3 before the visual inspection of semiconductor integrated circuit equipment 2, semiconductor integrated circuit equipment 2 is contained by the pocket 3 of surface 1a of the tray 1 for receipt. In this condition, visual inspection of surface 2b of package 2a of the semiconductor integrated circuit equipment 2 on two or more trays 1 for receipt is conducted.

[0025] After ending the visual inspection of surface 2b of said semiconductor integrated circuit equipment 2, the empty tray 1 for receipt is put on the topmost part of the tray 1 for receipt which plurality accumulated, and the tray 1 for receipt which plurality accumulated so that said tray 1 for receipt might become a bottom, as shown in drawing 4 is reversed.

[0026] By having reversed the tray 1 for receipt, rear-face 2c of package 2a of semiconductor integrated circuit equipment 2 becomes a top face. And visual inspection of rear-face 2c of package 2a of semiconductor integrated circuit equipment 2 is conducted by removing the topmost tray 1 for receipt.

[0027] The semiconductor integrated circuit equipment 2 on rear-face 1b of this tray 1 for receipt has migration controlled by projection 4a formed by protruding towards the rear-face 1b side from the surface 1a side of the tray 1 for receipt. Semiconductor integrated circuit equipment 2 will be in the condition of normal that surface 2b of package 2a serves as a top face, by reversing the tray 1 for receipt again after completing said visual inspection.

[0028] Thereby, according to the gestalt of this operation, a gap and deformation of lead 5 of the semiconductor integrated circuit equipment 2 generated at the time of the moving to other trays by the fixture are lost at the time of the visual inspection of semiconductor integrated circuit equipment 2.

[0029] Moreover, the gap and deformation of lead 5 by migration of the semiconductor integrated circuit equipment 2 at the time of reversal of the tray 1 for receipt are lost.

[0030] Furthermore, semiconductor integrated circuit equipment 2 can be easily taken out by the pincette hole 4 of surface 1a of the tray 1 for receipt.

[0031] As mentioned above, although invention made by this invention person was explained based on the gestalt of operation, it cannot be overemphasized that it can change variously in the range which this invention is not limited to the gestalt of said operation, and does not deviate from the summary.

[0032] For example, the tray 1 for receipt may contain semiconductor integrated circuit equipment 2 reversely with the gestalt of said operation at rear-face 1b of the tray 1 for receipt.

[0033]

[Effect of the Invention] It will be as follows if the effectiveness acquired by the typical thing among invention indicated by this invention is explained briefly.

(1) According to this invention, since it becomes unnecessary to move semiconductor integrated circuit equipment to other trays at the time of visual inspection, activity manday can be decreased.

(2) Moreover, semiconductor integrated circuit equipment's gap, deformation, etc. of a lead resulting from moving of other trays are lost by the above (1).

(3) Semiconductor integrated circuit equipment's gap, deformation, etc. of a lead at the time of reversal of the tray for receipt in visual inspection are lost further.

(4) Moreover, the pincette hole formed in the tray for receipt can perform ejection of semiconductor integrated circuit equipment easily with pincettes etc.

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DESCRIPTION OF DRAWINGS

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[Brief Description of the Drawings]

[Drawing 1] Drawing 1 is the amplification perspective view of the front face of the tray for receipt by the gestalt of 1 operation of this invention.

[Drawing 2] Drawing 2 is the amplification perspective view of the rear face of the tray for receipt by the gestalt of 1 operation of this invention.

[Drawing 3] Drawing 3 is the sectional view of the tray for receipt by the gestalt of 1 operation of this invention.

[Drawing 4] Drawing 4 is the sectional view of the tray for receipt after reversal by the gestalt of 1 operation of this invention.

[Drawing 5] Drawing 5 is the amplification perspective view of the front face of the tray for receipt which this invention person examined.

[Drawing 6] Drawing 6 is the amplification perspective view of the rear face of the tray for receipt which this invention person examined.

[Description of Notations]

1 Tray for Receipt

1a Front face

1b Rear face

2 Semiconductor Integrated Circuit Equipment

2a Package

2b Front face

2c Rear face

3 Pocket

3a Projection

4 Pincette Hole

4a Projection

5 Lead

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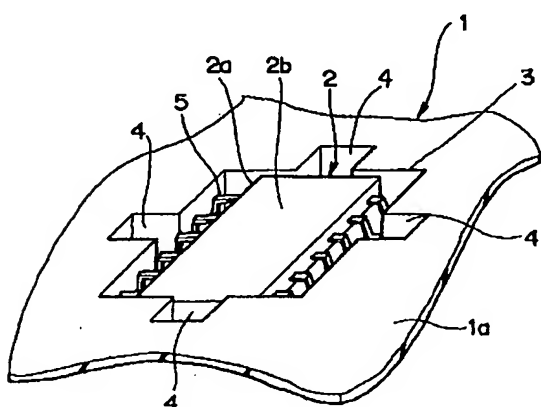
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## DRAWINGS

[Drawing 1]

図 1

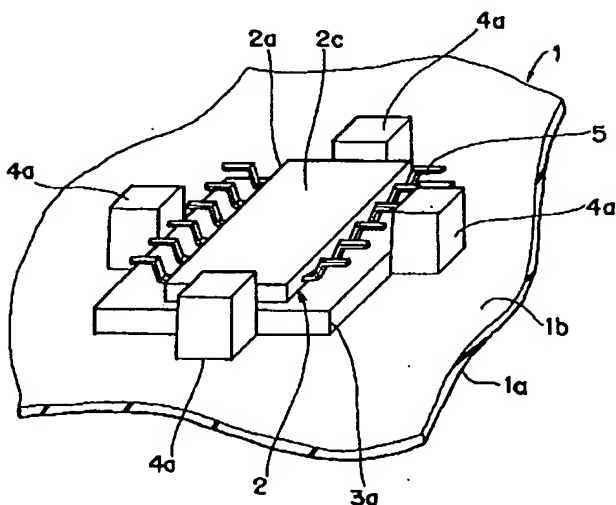


1: 収納用トレイ  
1a: 表面

2: 半導体集積回路装置  
4: ピンセット穴

[Drawing 2]

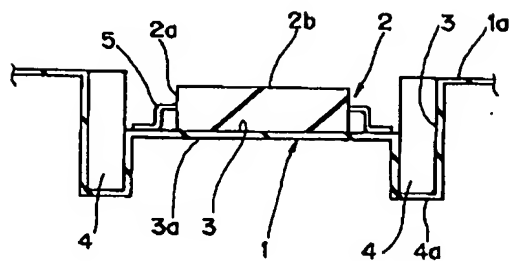
図 2



1b: 裏面  
4a: 突起

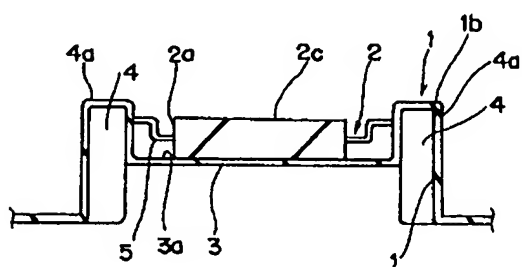
[Drawing 3]

図 3



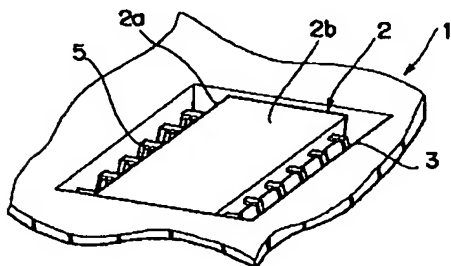
[Drawing 4]

図 4



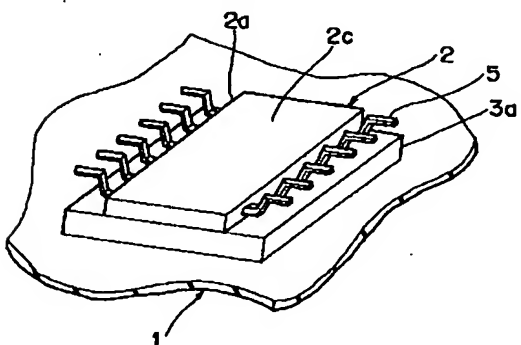
[Drawing 5]

図 5



[Drawing 6]

図 6



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